

Amendments to the 1999 National Electrical Code
Approved by MAG Building Codes Committee
January 17, 2001

Revise Section 250-118
(Underlined new; strikethrough deleted)

250-118. Types of Equipment Grounding Conductors

The equipment grounding conductor run with or enclosing the circuit conductors shall be one or more or a combination of the following:

1. A copper or other corrosion-resistant conductor. This conductor shall be solid or stranded; insulated, covered, or bare; and in the form of a wire or a busbar of any shape.
2. Rigid metal conduit.
3. Intermediate metal conduit.
4. Electrical metallic tubing with an individual equipment grounding conductor.
5. Flexible metal conduit with an individual equipment grounding conductor and where both the conduit and fittings are listed for grounding.
6. Listed flexible metal conduit that is not listed for grounding, with an individual equipment grounding conductor, and meeting all the following conditions.
 - a. The conduit is terminated in fittings listed for grounding.
 - b. The circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.
 - c. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground return path does not exceed 6 ft (1.83 m).
 - d. The conduit is not installed for flexibility.
7. Listed liquidtight flexible metal conduit with an individual equipment grounding conductor and meeting all the following conditions.
 - a. The conduit is terminated in fittings listed for grounding.
 - b. For trade sizes 3/8 in. through 1/2 in., the circuit conductors contained in the conduit are protected by overcurrent devices rated at 20 amperes or less.
 - c. For trade sizes 3/4 in. through 1 1/4 in., the circuit conductors contained in the conduit are protected by overcurrent devices rated not more than 60 amperes and there is no flexible metal conduit, flexible metallic tubing, or liquidtight flexible metal conduit in trade sizes 3/8 in. or 1/2 in. in the grounding path.
 - d. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground return path does not exceed 6 ft (1.83 m).
 - e. The conduit is not installed for flexibility.

8. Flexible metallic tubing with an individual equipment grounding conductor and where the tubing is terminated in fittings listed for grounding and meeting all the following conditions.

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(Underlined new; strikethrough deleted)

- a. The circuit conductors contained in the tubing are protected by overcurrent devices rated at 20 amperes or less.
 - b. The combined length of flexible metal conduit and flexible metallic tubing and liquidtight flexible metal conduit in the same ground return path does not exceed 6 ft (1.83 m).
9. Armor of Type AC cable with an individual equipment grounding conductor and as provided in Section 333-21.
10. The copper sheath of mineral-insulated, metal-sheathed cable.
11. The metallic sheath ~~or the combined metallic sheath and grounding conductors of~~ Type MC cable with an individual equipment grounding conductor.
12. Cable trays as permitted in Sections 318-3(c) and 318-7.
13. Cablebus framework as permitted in Section 365-2(a).
14. Other electrically continuous metal raceways listed for grounding.

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Revise Sections 210-8 (a) and (b)
(Underlined new; strikethrough deleted)

210-8. Ground-Fault Circuit-Interrupter Protection for Personnel

FPN: See Section 215-9 for ground-fault circuit-interrupter protection for personnel on feeders.

- (a) ~~Dwelling Units. All Occupancies.~~ All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified below shall have ground-fault circuit-interrupter protection for personnel.

1. Bathrooms.
2. Garages, and also accessory buildings that have a floor located at or below grade level not intended as habitable rooms and limited to storage areas, work areas, and areas of similar use.

Exception No. 1: Receptacles that are not readily accessible.

Exception No. 2: A single receptacle or a duplex receptacle for two appliances located within dedicated space for each appliance that, in normal use, is not easily moved from one place to another, and that is cord- and plug-connected in accordance with Section 400-7(a)(6), (a)(7), or (a)(8).

Receptacles installed under the exceptions to Section 210-8(a)(2) shall not be considered as meeting the requirements of Section 210-52(g).

3. Outdoors.

Exception: Receptacles that are not readily accessible and are supplied by a dedicated branch circuit for electric snow-melting or deicing equipment shall be permitted to be installed in accordance with the applicable provisions of Article 426.

4. Crawl spaces. Where the crawl space is at or below grade level.
5. Unfinished basements. For purposes of this section, unfinished basements are defined as portions or areas of the basement not intended as habitable rooms and limited to storage areas, work areas, and the like.

Exception No. 1: Receptacles that are not readily accessible.

Exception No. 2: A single receptacle or a duplex receptacle for two appliances located within dedicated space for each appliance that, in normal use, is not easily moved from one place to another, and that is cord- and plug-connected in accordance with Section 400-7(a)(6), (a)(7), or (a)(8).

Receptacles installed under the exceptions to Section 210-8(a)(5) shall not be considered as meeting the requirements of Section 210-52(g).

6. Kitchens. Where the receptacles are installed to serve the countertop surfaces.
7. Wet bar sinks. Where the receptacles are installed to serve the countertop surfaces and are located within 6 ft (1.83 m) of the outside edge of the wet bar sink.
Receptacle outlets shall not be installed in a face-up position in the work surfaces or countertops.

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Revise Sections 210-8 (a) and (b) (*Continued*)
(Underlined new; strikethrough deleted)

8. Within 6 ft. (1.83m) of any sink, wash basin, tub or shower.

~~(b) — Other than Dwelling Units. All 125-volt, single-phase, 15- and 20-ampere receptacles installed in the locations specified below shall have ground-fault circuit-interrupter protection for personnel.~~

~~1. — Bathrooms~~

~~2. — Rooftops~~

~~Exception: Receptacles that are not readily accessible and are supplied from a dedicated branch circuit for electric snow-melting or deicing equipment shall be permitted to be installed in accordance with the applicable provisions of Article 426.~~

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Revise Section 310-15(b)(6)
(Underlined new; strikethrough deleted)

- (6) 0120/240-Volt and 120/208-Volt, 3-Wire, Single-Phase Dwelling Services and Feeders. For dwelling units, conductors, as listed in Table 310-15(b)(6), shall be permitted as 120/240-volt and 120/208 volt, 3-wire, single-phase-service-entrance conductors, service lateral conductors, and feeder conductors that serve as the main power feeder to a dwelling unit and are installed in raceway or cable with or without an equipment grounding conductor. For application of this section, the main power feeder shall be the feeder(s) between the main disconnect and the lighting and appliance branch-circuit panelboard(s), and the feeder conductors to a dwelling unit shall not be required to be larger than their service-entrance conductors. The grounded conductor shall be permitted to be smaller than the ungrounded conductors, provided the requirements of Sections 215-2, 220-22, and 230-42 are met.

Table 310-15(b)(6). Conductor Types and Sizes for 120/240-Volt and 120/208-Volt, 3-Wire, Single-Phase-Dwelling Services and Feeders.
Conductor Types RH, RHH, RHW, RHW-2, THHN, THHW, THW, THW-2, THWN, THWN-2, XHHW, XHHW-2, SE, USE, USE-2

Conductor (AWG or kcmil)

Copper	Aluminum or Copper-Clad Aluminum	Service or Feeder Rating (Amperes)	
		$\leq 30^{\circ}\text{C}$ (86°F)	$> 30^{\circ}\text{C}$ (86°F)
4	2	100	----
3	1	110	----
2	1/0	125	100
1	2/0	150	125
1/0	3/0	175	150
2/0	4/0	200	175
3/0	250	225	200
4/0	300	250	225
250	350	300	250
350	500	350	300
400	600	400	350
500	750	----	400

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New Section 230-63:

230-63. Location. All service equipment rated 1000 amperes or more located inside a building shall be enclosed within a room or space separated from the rest of the building by not less than one-hour fire-resistive occupancy separation.

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Revise Section 336-4

(Underlined new; strikethrough deleted)

336-4. Uses Permitted

Type NM, Type NMC, and Type NMS cables shall be permitted to be used in the following:

1. One- and two-family dwellings, multifamily dwellings, and other residential accessory structures
- ~~2. Multifamily dwellings and other structures, except as prohibited in Section 336-5~~
- ~~3. Cable trays, where the cables are identified for the use~~
FPN: See Section 310-10 for temperature limitation of conductors.
 - (a) Type NM. Type NM cable shall be permitted for both exposed and concealed work in normally dry locations. It shall be permissible to install or fish Type NM cable in air voids in masonry block or tile walls where such walls are not exposed or subject to excessive moisture or dampness.
 - (b) Type NMC. Type NMC cable shall be permitted as follows:
 1. For both exposed and concealed work in dry, moist, damp, or corrosive locations
 2. In outside and inside walls of masonry block or tile
 3. In a shallow chase in masonry, concrete, or adobe protected against nails or screws by a steel plate at least 1/16-in. (1.59-mm) thick, and covered with plaster, adobe, or similar finish
 - (c) Type NMS. Type NMS cable shall be permitted for both exposed and concealed work in normally dry locations. It shall be permissible to install or fish Type NMS cable in air voids in masonry block or tile walls where such walls are not exposed or subject to excessive moisture or dampness. Type NMS cable shall be used as permitted in Article 780.

336-5. Uses Not Permitted

- (a) Types NM, NMC, and NMS. Types NM, NMC, and NMS cables shall not be used in the following:
 1. In any multifamily dwelling or other structure exceeding three floors above grade
For the purpose of this article, the first floor of a building shall be that floor that has 50 percent or more of the exterior wall surface area level with or above finished grade. One additional level that is the first level and not designed for human habitation and used only for vehicle parking, storage, or similar use shall be permitted.
 - ~~2. As service entrance cable~~

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Revise Section 336-4 (*Continued*)

(Underlined new; strikethrough deleted)

- ~~3. In commercial garages having hazardous (classified) locations as provided in Section 511-3~~
 - ~~4. In theaters and similar locations, except as provided in Article 518, Places of Assembly~~
 - ~~5. In motion picture studios~~
 - ~~6. In storage battery rooms~~
 - ~~7. In hoistways~~
 - ~~8. Embedded in poured cement, concrete, or aggregate~~
 - ~~9. In any hazardous (classified) location, except as permitted by Sections 501-4(b), Exception, 502-4(b), Exception, and 504-20~~
- (b) Types NM and NMS. Types NM and NMS cable shall not be installed in the following:
1. Where exposed to corrosive fumes or vapors
 2. Where embedded in masonry, concrete, adobe, fill, or plaster
 3. In a shallow chase in masonry, concrete, or adobe and covered with plaster, adobe, similar finish